

Application Serial No.: 10/031,105
Amdt. dated February 8, 2006
Reply to Office Action of November 14, 2005

REMARKS/ARGUMENTS

The Non-Final Office Action dated November 14, 2005 and the references cited therein have been carefully considered. In response to the Office Action, Applicants have amended Claims 4-6 and 11 and canceled Claims 2 and 3 which, when considered with the remarks set forth below, are deemed to place the case in condition for allowance. As a result of the present Amendment, Claims 4-6 and 11 remain in the case for continued prosecution.

In the Office Action, Claim 4 has been allowed. In reviewing Claim 4, Applicants have noted that the phrase "a joint multi-rope lever system" is somewhat confusing and have accordingly deleted the term "lever" from this phrase. It is believed that such deletion does not affect the scope of the claim and, therefore, Claim 4 should remain allowed. Applicants have amended Claims 5 and 6 in a similar manner.

Further in the Office Action, Claims 2, 5, 6 and 11 have been rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,630,855 to Bjurling. Claim 3 has been rejected under 35 U.S.C. §103(a) as being unpatentable over the Bjurling patent in view of U.S. Patent No. 3,712,661 to Strand. Claims 2, 5, 6 and 11 have also been rejected under 35 U.S.C. §103(a) as being unpatentable over Great Britain Patent No. GB 2031841 in view of Soviet Union Patent No. SU 001730000.

In response, Applicants have amended independent Claim 11 to further clarify the invention. In particular, Claim 11 has been amended to define a spreader system for lifting containers including a single actuator/multi-rope system for performing multiple operations. More specifically, the actuator applies a first rope force on the multi-rope system for telescopically moving the beam in the spreader frame. A second rope force applied by the actuator moves the beam to a position wherein a locking point of the beam becomes engaged with a locking unit of the frame. Finally, a third rope force is applied on the multi-rope system for actuating a twistlock on the beam for gripping or releasing the corners of a container. The third rope force is greater than the second rope force, and the second rope force, in turn, is greater than the first rope force.

For example, as described on page 4, lines 8-18 and on page 11, line 25 through page 12, line 19 of the present specification, a rope force of about 1 kN (i.e., first rope force) applied by the actuator on the multi-rope system will cause the beam to move telescopically in the frame. Such movement will continue as the locking point of the beam approaches the locking unit of the frame. To engage the locking point of the beam with the locking unit of the frame, a second rope force of about 2kN is applied to the multi-rope system by the actuator so that the locking point can overcome the ramp portion of the locking unit and be seated in the locking unit. At this point, the beam is locked into a position with respect to the frame. While the beam is locked to the frame, however, a 3.5-6 kN rope force (i.e., third rope force) can be safely applied to the multi-rope system to actuate the twistlocks. Thus, the application of increasing magnitudes of rope force by the actuator on the multi-rope system over time causes the sequential movement and locking of the beam with respect to the frame and subsequent actuation of the twistlocks once the beam is locked to the frame.

As also set forth in the present specification, one of the benefits of this arrangement is the ability to perform both telescopic movement of the beams and the opening and closing of the twistlocks with a single actuator/multi-rope system. As a result, a considerable reduction in overall weight, complexity and cost of the spreader system is achieved as compared to conventional spreader systems using multiple actuators to perform these separate operations.

Turning to the prior art, none of the cited references, taken alone or combined, discloses a single actuator applying varying rope forces on a multi-rope system to perform multiple functions on a spreader system for lifting containers. The Examiner states that the Bjurling patent shows a hydraulic actuator (9) generating different rope forces to the system for moving the telescoping beams and the twistlocks together. Applicants respectfully disagree. Nowhere in the Bjurling patent is there any mention of the hydraulic actuator (9) applying varying rope forces to move the beam, nor is there any mention of this actuator operating any twistlock.

Instead, the Bjurling patent simply describes a "hydraulic cylinder 9" connected between a stationary frame 1 and two telescoping beams 2 and 3 to move the beams apart

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with respect to the frame. The Bjurling patent does not teach or suggest applying varying forces with this cylinder so that the spreader system can perform multiple functions.

Moreover, the Bjurling patent describes only “conventional container engagement keys 8” for taking hold of containers at their respective points of engagement. These keys are not twistlocks, nor are they connected in any way to the hydraulic cylinder 9. In other words, the hydraulic cylinder 9 disclosed in the Bjurling patent clearly does not operate the keys, as defined in amended Claim 11.

The Examiner further cites the Strand patent as disclosing a rope system to actuate twistlocks. However, this patent fails to describe how such a system can be adapted to also control telescoping movement of beams with respect to a spreader frame.

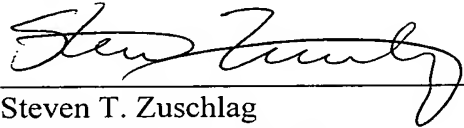
Similarly, neither the Great Britain '841 reference nor the Soviet Union '000 reference discloses a single actuator applying varying rope forces to a multi-rope system to both telescopically move a beam and operate a twistlock. Specifically, contrary to the Examiner's assertion, the Soviet Union '000 reference does not teach or suggest using a multi-rope system to actuate the twistlocks. Instead, the twin pulleys 10 and the flexible elements 12 as shown in the Soviet Union '000 reference only move the left and right beams. They do not actuate the twistlocks.

Thus, none of the cited references discuss the application of rope forces of different magnitudes to perform multiple spreader system functions, as defined in amended Claim 11. Accordingly, for all of the foregoing reasons, it is respectfully submitted that Claim 11, as amended, and the claims that depend therefrom patentably distinguish over the prior art.

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In view of the foregoing amendment and remarks, favorable consideration and allowance of the application with Claims 4-6 and 11 are respectfully solicited. If the Examiner believes that a telephone interview would assist in moving the application toward allowance, he is respectfully invited to contact the Applicants' attorney at the telephone number listed below.

Respectfully submitted,



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